



Installation Instructions

DeviceNet PC Card

(Catalog Number 1784-PCD series A and B)

Use this document to install and use the DeviceNet™ PC Card (PCMCIA interface), catalog numbers 1784-PCD/A and -PCD/B. This interface enables a system to communicate on a DeviceNet network.

| To install the card, read | See page |
|---|----------|
| ↓ Verify Package Contents | 2 |
| ↓ System Requirements | 3 |
| ↓ About this Interface | 3 |
| ↓ Compliance to European Union Directives | 7 |
| ↓ Installing the Card's Drivers on Windows® 3.1 or 3.11 | 8 |
| ↓ Installing the Card's Drivers on Windows 95 | 14 |
| ↓ Installing the Card | 22 |
| ↓ Removing the Card | 23 |
| ↓ Removing the Card's Drivers | 23 |
| ↓ Connecting the Card to the DeviceNet Network | 24 |
| ↓ Communicating with the Card on the DeviceNet Network | 26 |
| ↓ Specifications | 28 |

We use these conventions in this document:

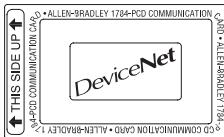
| Convention | Shows |
|--|--|
| 9 pt Courier | Screen displays and prompts |
| 9 pt Courier bold | Text you type as shown at the DOS prompt |
|  Enter | Keys that you press |

Throughout this document, we refer to the DeviceNet PC Card (both series A and series B) as the 1784-PCD card.

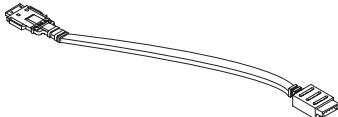
Verify Package Contents

Make sure that you have these items before you discard any packing material. If an item is missing or incorrect, contact your local sales representative.

1784-PCD card



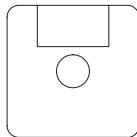
1784-PCD1 cable



5-pin linear connector (PN 94215305)



1784-PCD installation utility disk



installation instructions
(publication 1784-5.29)



System Requirements

| | |
|-----------------------------------|--|
| operating systems | Microsoft® Windows, version 3.1 or 3.11, or Windows 95 |
| memory | 4 MB or higher |
| hard disk space | 300K |
| diskette drive | one 3.5" diskette drive |
| PCMCIA slot | one Type II slot |
| PC card | 1784-PCD for interfacing to the DeviceNet network |
| application software | application software supporting WinDNet16™ software (e.g., DeviceNetManager™ software, cat. no. 1787-MGR, version 2.0) |
| PCMCIA software ¹ | Card and Socket Services, version 2.1 or greater |
| card services memory ¹ | 8KB or greater |
| card services IRQ ¹ | at least 1 available IRQ |

¹ For Windows 3.1x only

About this Interface

Read this section to familiarize yourself with **PC card** technology and the 1784-PCD card. **PC card** technology is relatively new, and therefore, has a set of terms that you may want to read about.

What's PCMCIA?

The Personal Computer Memory Card International Association (PCMCIA) developed a standard for credit-card size personal computer (**PC**) cards. The PCMCIA standard defines an architecture and communication method for these **PC cards**.

PC cards developed under Release 1.0 of the PCMCIA standard are used for data storage. PC Cards developed under Release 2.0 of the PCMCIA standard can be used for both I/O and data storage.

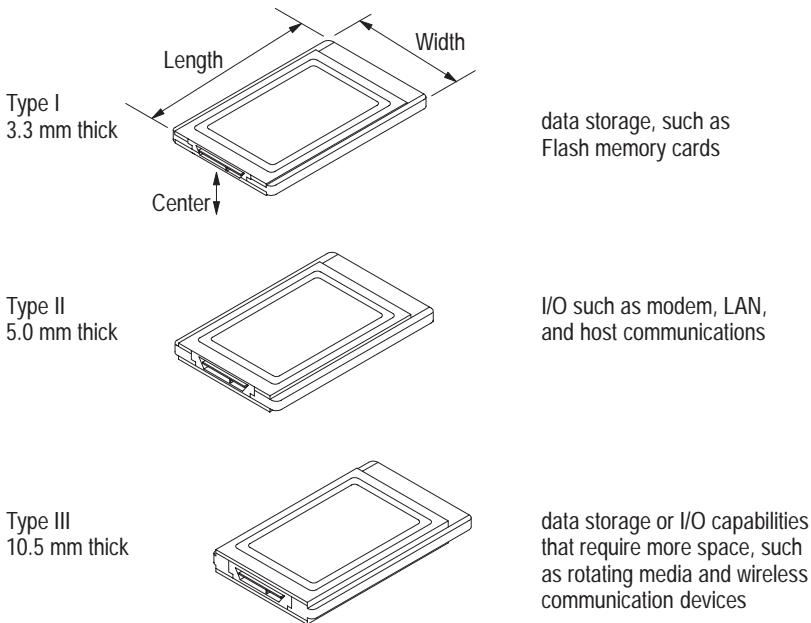
What's a PC Card?

Since personal computers have become smaller, a need for smaller storage media developed. The PC Card is a small form-factor adapter that can add memory, storage, and I/O capabilities to these smaller computers.

Architecture

All PC Cards measure the same length and width (54 mm x 85.6 mm), but differ in thickness at the center. The thickness at the connector end and along the rails is the same for all types of PC Cards.

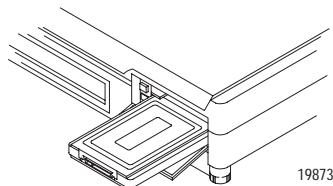
Currently there are three types of PC Cards:



19911

If the PCMCIA slot in your computer is thick enough to accommodate a Type III card, then it can also accommodate a Type I or II card.

All three types of PC Cards use the same 68-pin connector. The pins are in two parallel rows of 34 pins. When inserted into the PCMCIA slot on your computer, the connector mates with a single molded socket.



19873

Communication

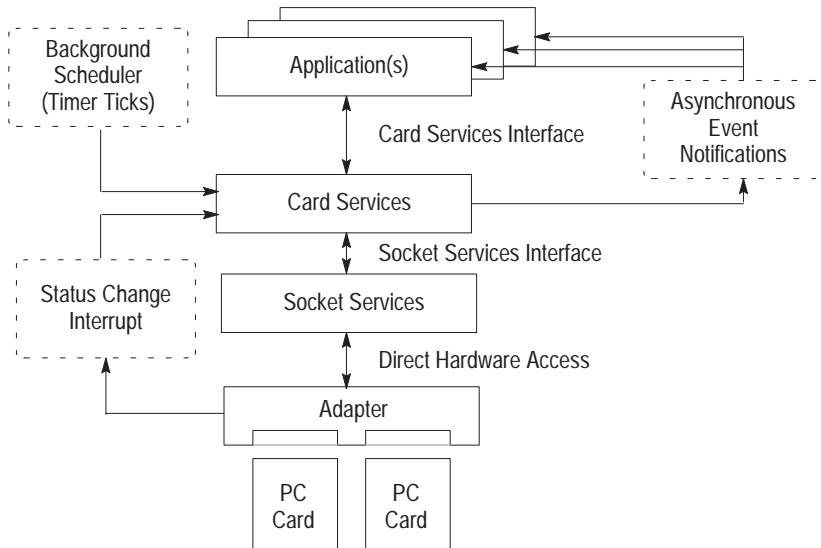
Communication between an installed PC Card and the computer is enabled through software interfaces defined by PCMCIA.

These software interfaces are called *Card and Socket Services*.

Once communication is established, the PC Card identifies itself through its *Card Identification Structure*.

When a PC Card is inserted into the slot, the connector meets with a *socket*. This socket provides the physical connection to the PC Card.

The PC Card then is connected to the I/O bus in your computer through the *adapter*.

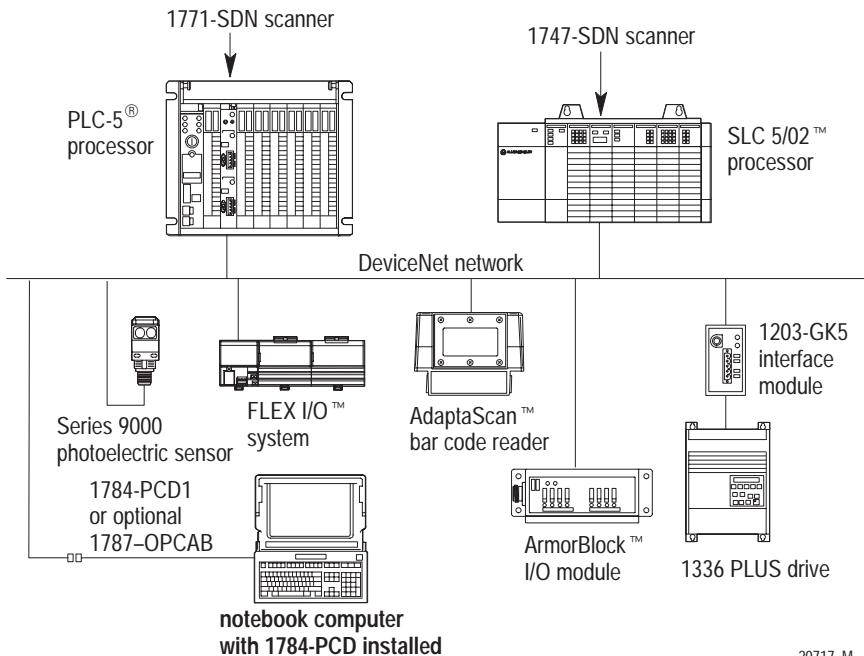


Socket Services identify how many sockets are present in your computer and detects if a PC Card is inserted into one of these sockets.

Communication between the PC Card and the I/O bus in your computer is handled by a hardware interface called the adapter. The adapter is controlled by *Socket Services*.

Using the 1784-PCD Card

The 1784-PCD card is a PC card that interfaces between your system and the DeviceNet network.



20717-M

Important: Your computer must be PCMCIA 2.1 compliant to support the 1784-PCD card. To verify that your computer is PCMCIA 2.1-compliant, see your computer's user manual.

For additional support using the PCD card, access these Rockwell Automation support services.

| Technical Support | Access at |
|-------------------|---|
| Internet Web Site | http://www.ab.com — as a registered member, open to http://www.ab.com.mem/prodserv/services/technotes/techmain.html |
| Fax-back System | 440.646.5436 (requires a touch-tone telephone) |
| Telephone | 440.646.6800 |

Compliance to European Union Directives

If this product has the  marking, it is approved for installation within the European Union and EEA regions. It has been designed and tested to meet the following directives.

EMC Directive

This product is tested to meet Council Directive 89/336/EEC Electromagnetic Compatibility (EMC) using a technical construction file and the following standards, in whole or in part, documented in a technical construction file:

- EN 50081-2 EMC – Generic Emission Standard, Part 2 – Industrial Environment
- EN 50082-2 EMC – Generic Immunity Standard, Part 2 – Industrial Environment

This product is intended for use in an industrial environment.

Low Voltage Directive

This product is tested to meet Council Directive 73/23/EEC Low Voltage, by applying the safety requirements of EN 61131-2 Programmable Controllers, Part 2 – Equipment Requirements and Tests.

For specific information required by EN61131-2, see the appropriate sections in this manual as well as the following Allen-Bradley publications:

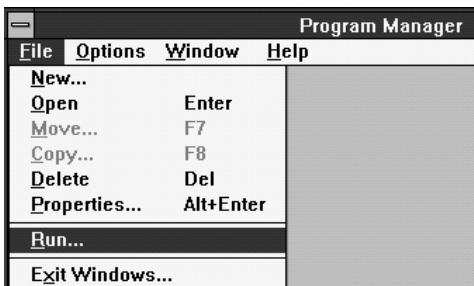
- Industrial Automation Wiring and Grounding Guidelines for Noise Immunity, publication 1770-4.1
- Automation Systems Catalog, publication B111

Open Equipment

This equipment is classified as open equipment and must be mounted in an enclosure during operation to provide safety protection.

Installing the Card's Drivers on Windows 3.1 or 3.11

1. Insert the 1784-PCD installation utility disk into your system's 3.5" disk drive.
2. Start Windows and access the Program Manager.
3. From the File menu, choose Run.



4. In the Run dialog box, type:

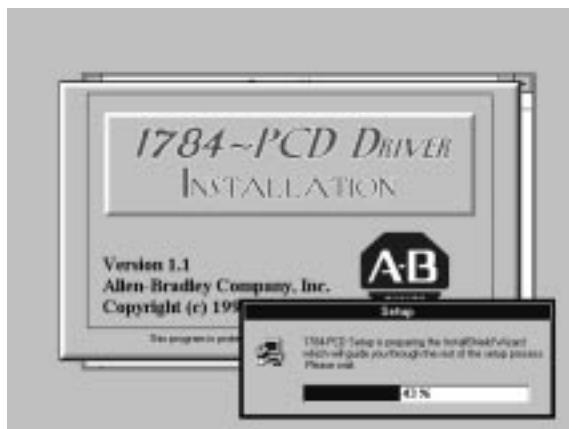
A:\SETUP.EXE

If you inserted the disk into another drive,
use the appropriate drive letter instead of a:



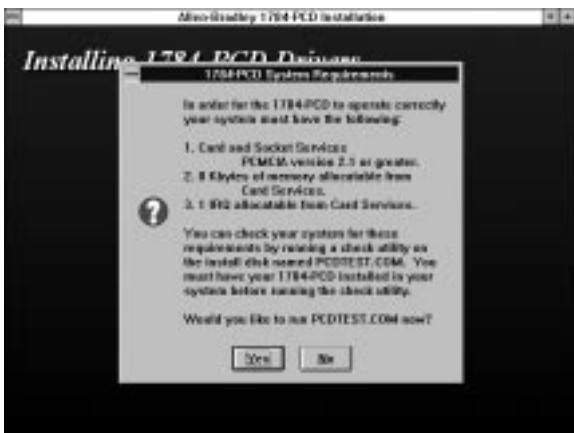
5. Press or click OK.

You see:



6. Press or click Next.

You see:



7. To test your system for the proper requirements, press or click Yes.
To continue with the installation, click No and go to paragraph after step 9.

You see:



8. To continue with the test, press  or click Yes.

You see an MS-DOS screen that lets you see the results of the system test. See page 2 to see if you meet the requirements.

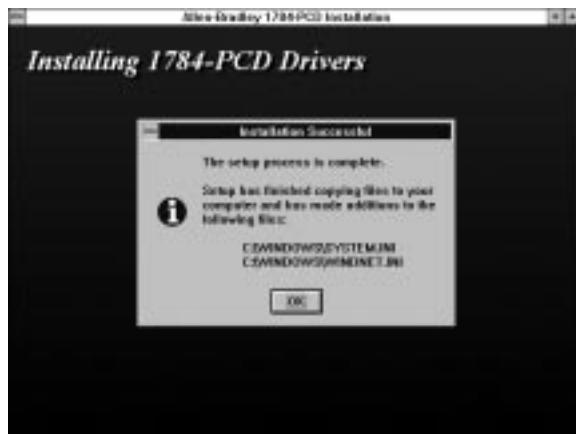
Once you've finished viewing the results of the test, press any key to return to the Program Manager.

9. Go back to step 3.

You see:

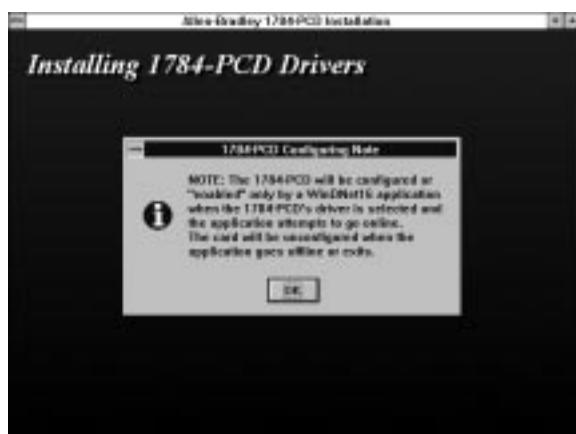


Once the installation is complete, you see



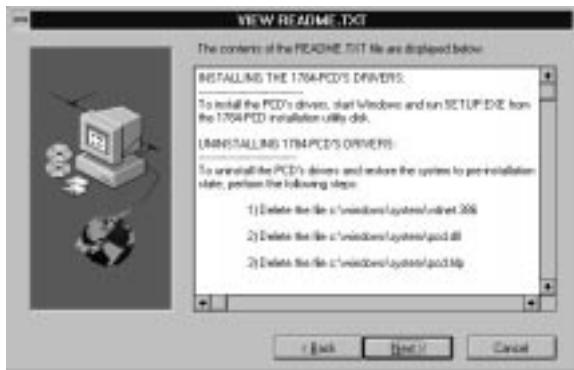
10. Press or click OK.

You see:



11. Press or click OK.

You see the release notes:



12. Press or click Next.

You see:



► We recommend that you select “Yes, I want to restart Windows now.” Your 1784-PCD card will not work with your software application until you have restarted Windows.

13. Select your option and press or click OK.

If you selected “Yes, I want to restart Windows now” or “Yes, I want to restart my computer now,” you see:

Allen-Bradley 1784-PCD Driver Version 1.1
Copyright (c) 1996 Allen-Bradley Company, Inc.

Installing the Card's Drivers on Windows 95 (16-Bit)

You may install the PC card driver with or without the PC card present.

Using the PC Card

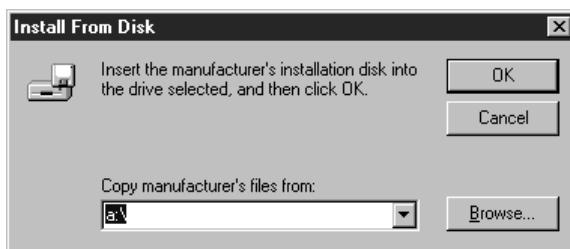
1. Insert the card into your system following the directions on page 22.

You see:



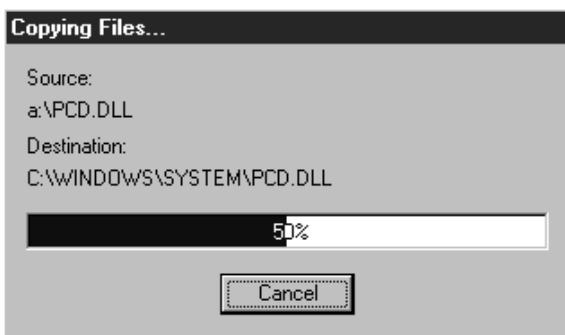
2. Press or click OK.
3. Insert the 1784-PCD installation utility disk into your system's 3.5" disk drive.

You see:



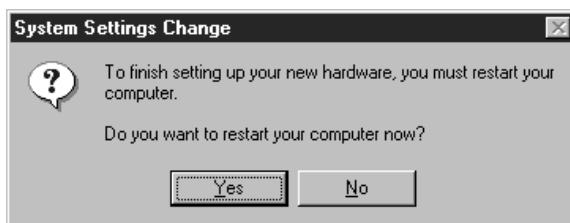
4. Press or click OK.

You see this screen while the driver is installed:



Once the installation is complete, you see:

You see:



► We recommend that you select Yes. Your 1784-PCD card will not work with your software application until you have restarted Windows.

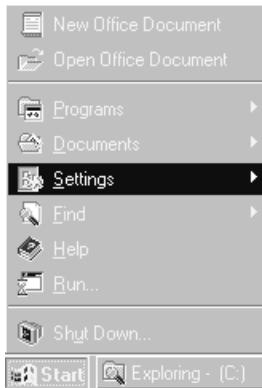
5. To restart Windows, press or click Yes.

To return to the Windows environment, click No.

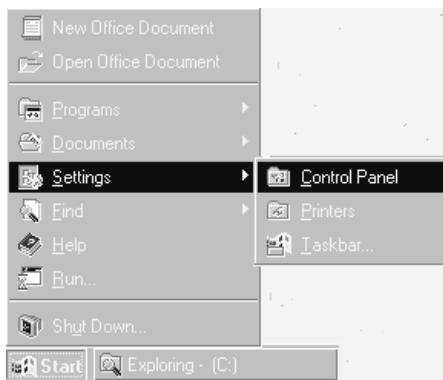
Without the PC Card

1. Click Start in the taskbar.

You see:



2. From the Settings menu, choose Control Panel.



You see:



3. Double-click on Add New Hardware 

You see:



4. Press  or click Next.

You see:



5. Select No.

6. Press or click Next.

You see:



7. Scroll down the list and select Other Devices.

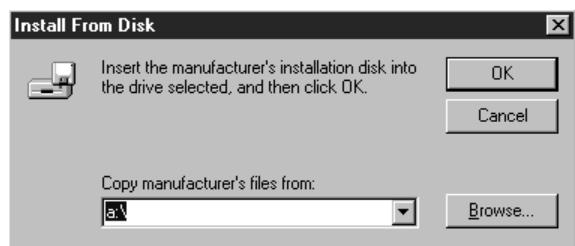
8. Press or click Next.

You see:



9. Select Have Disk.

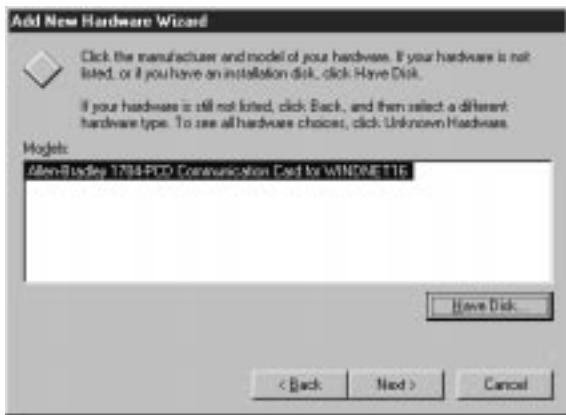
You see:



10. Insert the 1784-PCD installation utility disk into your system's 3.5" disk drive.

11. Press  or click OK.

You see:



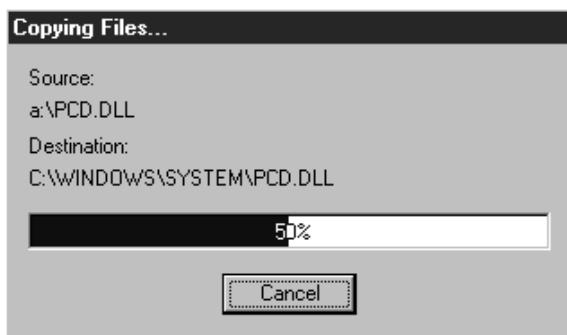
12. Click Next.

You see:



13. Press or click Next.

You see this screen while the driver is installed:



You see:

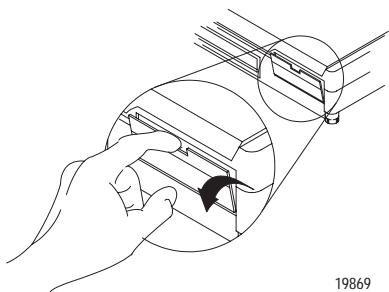


14. Press  or click Finish.

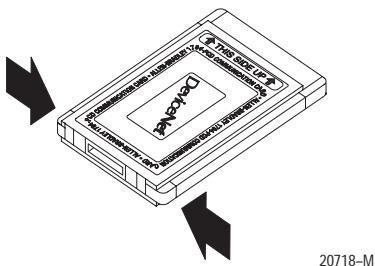
Inserting the Card

Important: You can insert or remove the card from a powered or unpowered computer.

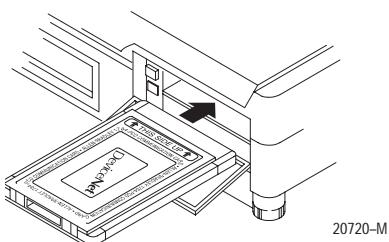
► The following diagrams show a PCMCIA 2.1 compliant system. If you are using another computer, your installation may be slightly different.



19869



20718-M



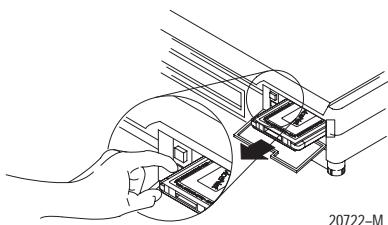
20720-M

1. Access the PCMCIA slot.

2. Grasp the card by the edges with the logo facing upward and the 68-pin connector facing into the PCMCIA slot.

3. Insert the card into the PCMCIA slot and slide it in until it is firmly seated in the connector. Some computers have an ejector button that pops out when the card is seated in the connector.

Removing the Card



20722-M

On most computers, you press the release button and remove the card from the slot. If this is not applicable to your computer, follow the instructions specified in its user manual.

Removing the Card's Drivers

For information on removing the 1784-PCD drivers, see the README.txt file on the 1784-PCD installation utility disk.

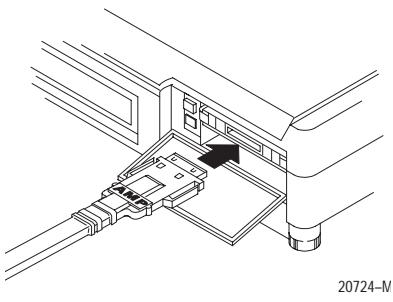
Connecting the Card to the DeviceNet Network

These instructions assume that you have:

- installed your application software
- installed the 1784-PCD drivers and restarted Windows (page 8)
- installed the card (page 22)

Important: If you have questions or need additional information about connecting cables, see the DeviceNet Cable Planning and Installation Manual, publication DN-6.7.2.

Important: The following diagrams show a PCMCIA 2.1 compliant system. If you are using another computer, your installation may appear slightly different.



1. Attach the smaller end of the 1784-PCD1 cable to the 1784-PCD card.



The silver side should face upward as you connect the cable to the 1784-PCD card.

2. Attach the other end of the 1784-PCD1 cable to the linear plug or cable you are using.

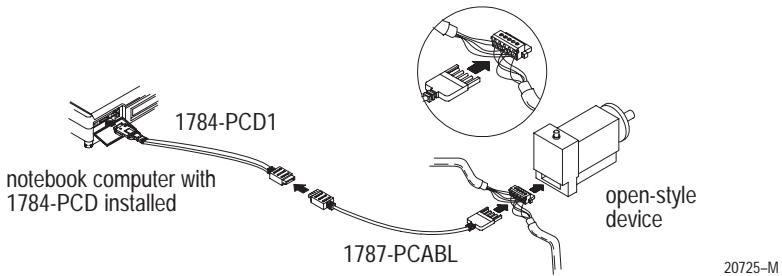
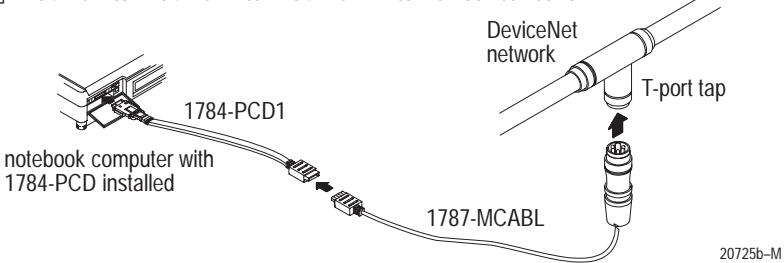
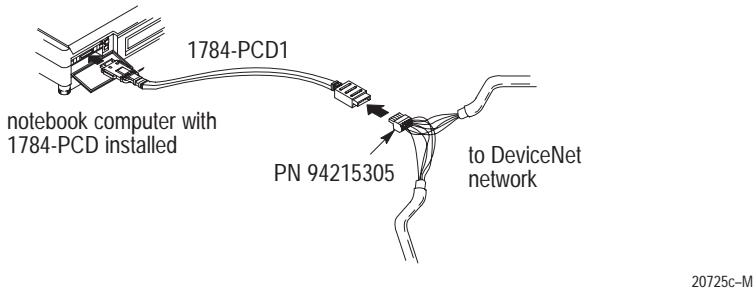
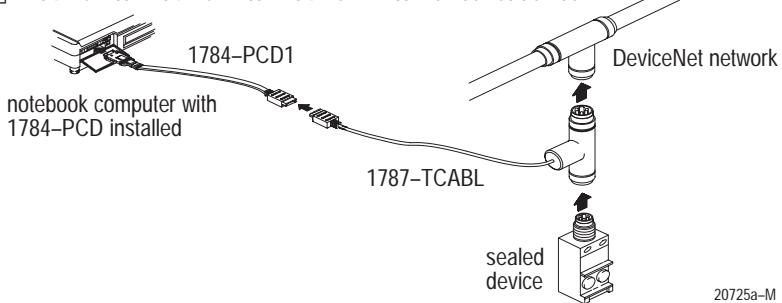
You can connect the card to the DeviceNet network using a

Catalog or Part No.^① See figure

| | | |
|---------------------------------------|--------------|------------------|
| 5-pin probe cable | 1787-PCABL | [1] |
| sealed mini-male cable | 1787-MCABL | [2] |
| 5-pin linear plug without jack screws | PN 94215305 | [3] ^② |
| T-style cable | 1787-TCABL | [4] on page 25 |
| optional 1787-OPCAB | 1787-OPCAB/A | [5] on page 26 |

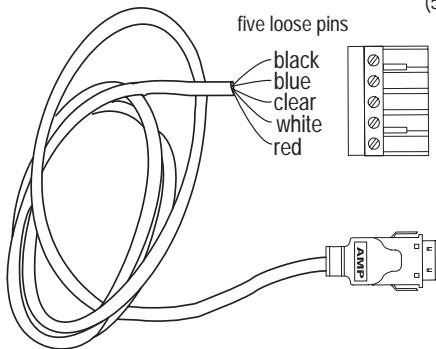
^① You purchase the cables separately from Allen-Bradley.

^② This plug is supplied with the 1784-PCD card.

1 1784-PCD to 1784-PCD1 to 1784-PCABL to DeviceNet network**2 1784-PCD to 1784-PCD1 to 1784-MCABL to DeviceNet network****3 1784-PCD to 1784-PCD1 to 5-pin linear plug (PN 94215305) DeviceNet network****4 1784-PCD to 1784-PCD1 to 1784-TCABL to DeviceNet device**

[5] 1784-PCD to 1787-OPCAB/A

These pins plug into any open-style connector (5- or 10-position).



Important: The 1787-OPCAB/A is an option only; it does not come with the 1784-PCD product. If you want it, you must order it separately.

3. Verify that you can go online with the card and your application software. If you have difficulty establishing communication, check your cable connections and refer to the documentation for your application software.

Communicating with the Card on the DeviceNet Network

The 1784-PCD card communicates on the DeviceNet network through:

- Allen-Bradley DeviceNet Manager software (cat. no. 1787-MGR), version 2.0^① or later. For information on using the card with this software, see the *DeviceNet Manager Software User Manual*, publication 1787-6.5.3.

- any application software that is compatible WinDNet16 software.^① WinDNet16 software lets you communicate on the DeviceNet network from your Microsoft Windows application. This software implements the DeviceNet protocol for your application with simple send and receive services, and frees your application from having to have detailed knowledge of the DeviceNet protocol.

^① This software requires Windows 3.1 or higher.

Specifications

1784-PCD

| | | |
|---|---|-------------------------------|
| PCMCIA Type | Type II form-factor network adapter card | |
| PCMCIA Standard | compliant to PCMCIA Standard, release 2.1 | |
| Card and Socket Services Standard | compliant to PCMCIA Card and Socket Services Standard, revision 2.1 or greater | |
| Power Requirements | PC | DeviceNet network |
| | series A: 5 V @ 275 mA maximum | 25 V maximum 90 mA maximum |
| | series B: 5 V @ 195 mA maximum | 25 V maximum 90 mA maximum |
| Environmental Conditions | Operating ^① | Non-operating |
| Slot Temperature | 0-50° C (32-122° F) | -40-85° C (-40-185° F) |
| Humidity | 5-95% without condensation | 5-95% without condensation |
| Vibration | 0-70 Hz, constant .012" displacement 70-500 Hz, constant 2G acceleration | NA |
| Shock | 30 G peak/11 ms | 50 G peak/11 ms |
| Agency Certification (when product or packaging is marked) |   marked for all applicable directives | |

^① The operating parameters describe the environment within the PCMCIA slot. Refer to the documentation for your computer for environmental requirements. The PCD card should not exceed those specifications.

1784-PCD1

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|--|------------------|--|---|--|---|--|----|--|------|--|------|--|----|--|----|--|---|--|---|--|---|---|---|---|---|---|
| Total length of cable | 34.9 cm (13.75") | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pin Assignments | PC card plug | DeviceNet header | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <tr><td>3</td><td></td></tr> <tr><td>5</td><td></td></tr> <tr><td>9</td><td></td></tr> <tr><td>13</td><td></td></tr> <tr><td>SHLD</td><td></td></tr> <tr><td>SHLD</td><td></td></tr> <tr><td>10</td><td></td></tr> <tr><td>14</td><td></td></tr> <tr><td>4</td><td></td></tr> <tr><td>6</td><td></td></tr> </table> | 3 | | 5 | | 9 | | 13 | | SHLD | | SHLD | | 10 | | 14 | | 4 | | 6 | | <table border="1"> <tr><td>1</td></tr> <tr><td>2</td></tr> <tr><td>3</td></tr> <tr><td>4</td></tr> <tr><td>5</td></tr> </table> | 1 | 2 | 3 | 4 | 5 |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHLD | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHLD | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

1787-OPCAB**Pin Assignments****PC card plug****DeviceNet header**

AdaptaScan, ArmorBlock, DeviceNetManager, FLEX I/O, PLC-5, SLC 5/02, and WinDNet16 are trademarks of Rockwell Automation, Inc.

DeviceNet is trademark of Open DeviceNet Vendors Association (O.D.V.A.).

Microsoft and Windows are registered trademarks of Microsoft Corporation.



Worldwide representation.



Argentina • Australia • Austria • Bahrain • Belgium • Brazil • Bulgaria • Canada • Chile • China, PRC • Colombia • Costa Rica • Croatia • Cyprus • Czech Republic • Denmark • Ecuador • Egypt • El Salvador • Finland • France • Germany • Greece • Guatemala • Honduras • Hong Kong • Hungary • Iceland • India • Indonesia • Ireland • Israel • Italy • Jamaica • Japan • Jordan • Korea • Kuwait • Lebanon • Malaysia • Mexico • Netherlands • New Zealand • Norway • Pakistan • Peru • Philippines • Poland • Portugal • Puerto Rico • Qatar • Romania • Russia-CIS • Saudi Arabia • Singapore • Slovakia • Slovenia • South Africa, Republic • Spain • Sweden • Switzerland • Taiwan • Thailand • Turkey • United Arab Emirates • United Kingdom • United States • Uruguay • Venezuela • Yugoslavia

Allen-Bradley Headquarters, 1201 South Second Street, Milwaukee, WI 53204 USA,
Tel: (1) 414 382-2000 Fax: (1) 414 382-4444